

Cecilia Fager



Education

Master of Science - Materials Chemistry and Nanotechnology, Chalmers	2013–2015
Bachelor of Science - Chemistry Engineering, Chalmers	2009–2013
Science, S:t Olovs Education Center	2006–2009

Theses

Master Thesis, Physics, Materials Microstructure, Chalmers

Gothenburg, Sweden 19.01.2015–19.06.2015

Addition of zinc to pressurized water reactors has shown to inhibit the incorporation of radio activity into oxide films formed on stainless steel 304L. The interest throughout this master thesis was to detect zinc within the oxide film. This was done by using Scanning Electron Microscope with Energy Dispersive X-Ray analysis to perform chemical analysis of the oxide content. Using Focused Ion Beam with Scanning Electron Microscope to perform cross-section to reveal the internal microstructure within the oxide film. X-Ray Diffraction and Raman Spectroscopy were used in order to characterise the iron oxide. Finally, Transmission Electron Microscope was used to examine where zinc was incorporated onto the atomic scale.

Bachelor Thesis, Chemistry and Biochemistry, High Temperature Corrosion, Chalmers

Gothenburg, Sweden 05.03.2012–01.06.2012

The interest of the bachelor thesis was to examine how the microstructure of the formed oxide onto FeCrAl-alloys exposed to oxygen and low oxygen differed. This is important in the recycling industry. The sample preparation involved several steps of grinding and polishing. The exposure occurred in an oven at different high temperatures. After the samples were prepared and exposed, examination using Scanning Electron Microscope was performed where different structures of the FeCrAl-oxides could be identified which was alfa and beta FeCrAl-oxides.

Employments

PhD Student, Research School Materials Science at Physics, Eva Olsson Group, Chalmers

Gothenburg, Sweden 26.10.2015 – XX

Visualisation of the 3D micro- and nanostructures of the drug transport path within coatings for controlled drug release is of high interest in order to further tailor the drug release. Investigation of the 3D micro- and nanostructure of phase-separated polymer films applied for controlled drug release using Focused Ion Beam combined with Scanning Electron Microscope tomography have been the focus during the first half of my PhD studies. The following part of the PhD studies will be focused on imaging and increase the understanding of the interface between the two phase-separated polymers using Transmission Electron Microscope.

Project Assistant, Physics, Materials Microstructure, Chalmers

Gothenburg, Sweden 09.06.2014–31.12.2014

The aim of this project was to investigate the interface between a weld and stainless steel. The project involved sample preparation such as grinding, polishing and electrochemical etching in order to reveal the microstructure. An overview of the different areas, the bulk, the interface between the weld and the stainless steel and finally the weld part was obtained using an optical microscope. Finally, the microstructure was imaged using a scanning electron microscope in combination with chemical analysis using energy dispersive x-ray analysis.

Lab Assistant, Södra Cell Värö – Pulp Mills

Väröbacka, Sweden 17.06.2013–04.08.2013. Extended to 31.08.2013

- I analysed water samples from the pulp mills with atom absorption spectroscopy, pH measurements, conductivity measurements, titrations and sodium measurement.

Lab Assistant, Södra Cell Mörrum - Pulp Mills

Mörrum, Sweden 11.06.2012–17.08.2012

- I analysed samples from the pulp using filtrations, titrations.

Project Assistant, Chemistry and Biochemistry, High Temperature Corrosion, Chalmers

Gothenburg, Sweden 04.06.2012–22.06.2012

- I performed samples preparation of FeCrAl-alloys (cutting, grinding and polishing). Followed by exposing the samples to high temperatures in ovens and finally examined the microstructure using scanning electron microscopy.

Caretaker, Uppvidingehus AB

Åseda, Sweden June-Aug 2005-2011

- I took care of several apartment houses and I learnt a lot of social skills during these summers in order to meet the needs of the tenants.

List of Publications, Attended Conferences and Workshops

- 3D Reconstruction of Porous and Poorly Conductive Soft Materials Using FIB-SEM Tomography. *Licentiate Thesis*. **Cecilia Fager**. Chalmers University of Technology
- Book chapter in: Nanotechnologies in Preventive and Regenerative Medicine - An Emerging Big Picture. *Soft Materials and Coatings for Controlled Drug Release*. C. Fager and E. Olsson, 2018.
- Article: Fabrication and Characterization of Plasmonic Nanopores with Cavities in the Solid Support. *Sensors* 2017, 17 (6), 144. B. Malekian, K. Xiong, G. Emilsson, J. Andersson, C. Fager, E. Olsson, E. M. Larsson-Langhammer and A.B. Dahlin
- Accepted abstract of International Microscopy Congress, Sydney, 3 min presentation + digital poster 2018.09.08-2018.09.15
- University of California Santa Barbara - Chalmers Workshop on Materials Science and Engineering, at Chalmers – 30 min presentation
2017.09.11-2017.09.12
- University of Tokyo-Chalmers Workshop on Advanced Materials and Transmission Electron Microscopy, Tokyo, Japan
2017.03.29-2017.03.30
- Materials Science and Engineering Congress, Darmstadt, Germany
2016.09.27-2016.09.29
(Poster)
- European Microscopy Congress, Lyon, France
2016.08.28-2016.09.02
(Poster)
- University of California Santa Barbara - Chalmers Workshop on Materials Science and Engineering, USA
2016.01.11-2016.01.12
(Presentation)

Additional

- Teaching undergraduate students in scanning electron microscopy, transmission electron microscopy and scanning tunnelling microscopy.